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Capsicispora mycophila gen. & sp. nov. from southern China

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Abstract—A new hyphomycete genus and species, *Capsicispora mycophila*, is described and illustrated. *Capsicispora* is characterized by mycophilic mycelium and mononematous, hyaline, determinate conidiophores with monoblastic, terminal conidiogenous cells and schizolytic secession of solitary, hyaline conidia. A key to *Capsicispora* and morphologically similar genera is provided.

Key words—conidial fungi, hyperparasite, taxonomy

Introduction

Saprobic hyphomycetes are highly diverse on plant material and numerous new taxa have been recently discovered (Zhang et al. 2009, Ren et al. 2012, Li et al. 2012, Ma et al. 2014, Xia et al. 2014). During our ongoing surveys of saprobic fungi associated with woody debris in subtropical forests of Henan province, an undescribed mycophilic fungus was collected overgrowing the conidiophores and conidia of *Ellisembia camelliae-japonicae* (Wu & Zhuang 2005). Detailed studies of its morphology and development revealed that it could not be accommodated in any previously described genus (Carmichael et al. 1980; Subramanian 1971; Ellis 1971, 1976; Matsushima 1975, 1983, 1985, 1993, 1995; Castañeda-Ruiz & Kendrick 1990, 1991; Wu & Zhuang 2005). For that reason, we describe a new genus for this unknown fungus.

Material & methods

Samples were processed, examined, and photographed as described in Xia et al. (2014). Adobe Photoshop 7.0 was used to process images into compound photographs; backgrounds were modified for esthetic reasons. We were unable to culture this species and so no molecular data are presented here. The specimens are deposited in the Herbarium of Department of Plant Pathology, Shandong Agricultural University, Taian, China (HSAUP) and the Mycological Herbarium, Institute of Microbiology, Chinese Academy of Sciences, Beijing, China (HMAS).

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Differs from *Capsicumyces* by its mycophilic habit and its schizolytic conidial secession.

Type Species: *Capsicispora mycophila* J.Y. Wang et al.

Etymology: Referring to the conidial shape is similar to *Capsicumyces*.

Mycelium mycophilic. Conidiophores macronematous, mononematous, hyaline, unbranched, erect. Conidiogenous cells monoblastic, integrated, terminal, hyaline, determinate. Conidial secession schizolytic. Conidia solitary, hyaline.

Capsicispora mycophila J.Y. Wang, Yu M. Cai & X.G. Zhang, **sp. nov.** Fig. 1

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Differs from *Capsicumyces delicatus* by its mycophilic habit, its schizolytic conidial secession, and its predominantly navicular or fusiform conidia with an apical mucilaginous sheath.

Type: China, Henan Province, Liankangshan, on conidiophores and conidia of *Ellisembia camelliae-japonicae* (Subram.) W.P. Wu growing on dead branches of unidentified broadleaf tree, 16 Oct. 2015, J.Y. Wang (**Holotype**, HSAUP H10083; **isotype**, HMAS 245607).

Etymology: From Greek *myco* = fungus, and *philus* = loving, indicating its occurrence on other fungi.

Colonies on the natural substrate effuse, hyaline, very thin, scarcely visible, overgrowing *Ellisembia camelliae-japonicae* colonies (especially overgrowing the conidia). Mycelium creeping, mycophilic, superficial, repent, apparently aseptate or rarely septate, hyaline, smooth, 1–2 µm wide. Conidiophores mononematous, hyaline, simple, erect, aseptate, narrowly truncate at the apex, 9–16 × 2–4 µm. Conidiogenous cells integrated, terminal, monoblastic, hyaline. Conidial secession schizolytic. Conidia solitary, hyaline, 0–1-septate, smooth, fusiform, navicular or obclavate, 20–30 µm long, 4–4.6 µm diam. at the broadest part, with a short, protruding truncate hilum at the base, attenuated towards the apex, apex often surrounded by a hyaline, globose mucilaginous sheath.

Fig. 1. *Capsicispora mycophila.* (ex holotype, HSAUP H10083): A. Four conidiophores (and one developing conidium). B. Habit on substrate (*Ellisembia camelliae-japonicae* – dark conidiophores and phragmoconidia): conidiophores, conidiogenous cells, and conidia. C. Conidia.

Comments – *Capsicispora* demonstrates unique features in morphology and ontogeny. Several existing genera (e.g., *Capsicumyces*, *Eriomycopsis*, *Parachionomyces*, *Paratrichoconis*, and *Soloacrospora*) have morphological characters that resemble those of *Capsicispora* (Spegazzini 1910, Ciferri 1954, Deighton & Pirozynski 1972, Gamundí et al. 1979, Thaung 1979, Castañeda-Ruiz & Kendrick 1991, Braun 1994, Castañeda-Ruiz et al. 1997, Braun & Mel'nik 1998). However, in *Eriomycopsis*, conidiophores are indeterminate with sympodial proliferations and the conidia are rostrate, while in *Capsicispora* the conidiogenous cells are determinate and the conidia lack a rostrum. Septate branched geniculate conidiophores, polyblastic conidiogenous cells, and rostrate conidia separate *Parachionomyces* from *Capsicispora*. *Paratrichoconis* and *Capsicumyces* can be distinguished from *Capsicispora* by their non-mycophilic mycelium and rhexolytic conidia secession. The whip-like setae, non-mycophilic mycelium, pale brown conidiophores of *Soloacrospora* clearly separate that genus from *Capsicispora* with its mycophilic mycelium, hyaline conidiophores, and absence of setae.

Key to *Capsicispora* and morphologically similar genera

1. Mycelium mycophilic ('hyperparasitic') 2
1. Mycelium non-mycophilic 4
2. Conidia rostrate 3
2. Conidia not rostrate ..... *Capsicispora*
3. Conidiophores branched ..... *Parachionomyces*
3. Conidiophores unbranched ..... *Eriomycopsis*
4. Setae present ..... *Soloacrospora*
4. Setae absent 5
5. Conidial secession schizolytic ..... *Capsicumyces*
5. Conidial secession rhexolytic ..... *Paratrichoconis*

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